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AN EVALUATION OF WAXTAGS® AS A MONITORING TECHNIQUE FOR LOW-DENSITY POSSUM (*TRICHOSURUS VULPECULA*) POPULATIONS IN NEW ZEALAND.

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Abstract:
In New Zealand, the brushtail possum (*Trichosurus vulpecula*) is a widespread economic and epidemiological pest species. Currently, assessments of abundance are based on the numbers of possums captured in leg-hold traps; referred to as the Residual Trap Catch Index (RTCI). Whilst research suggests that the RTCI is a relatively robust monitoring technique, setting out traps is labour-intensive and also places ground-dwelling native birds at risk. An alternative monitoring technique involves the use of WaxTags, where possums can be identified by bite marks. These devices are lightweight and many more can be placed out in the field than leg-hold traps. This is likely to increase the accuracy and precision of population estimates, particularly when the population density is low and/or the distribution is patchy following control. To evaluate the potential of WaxTags, field trials directly compared WaxTags with leg-hold traps in four low-density possum populations. At each site, 20 lines of leg-hold traps were overlaid with lines of WaxTags stations. The WaxTag lines were more effective at detecting possums with 37-47% of trap lines failing to detect possums where a WaxTag line had indicated possum presence. Two WaxTag indices of abundance (proportion of WaxTag stations showing any evidence of possum chewing and the mean total number of WaxTags chewed per station) were also highly correlated with the RTCI estimates. These results suggest that WaxTags have good potential for monitoring low-density possum populations. Additional research should be undertaken to further validate the relationship between WaxTags and RTCI at other possum densities, in conjunction with other measures of abundance such as total capture and/or mark-recapture techniques.